

## University of Groningen

### **The role of client empathy in treatment outcome in a sample of adolescents referred to forensic youth psychiatric services**

de Wied, Minet; van der Graaff, Jolien; de Rooij, Guido; Scheepers, Floor; Hoekstra, Pieter J.; Branje, Susan; van de Schoot, Rens

*Published in:*  
Children and Youth Services Review

*DOI:*  
[10.1016/j.chilyouth.2020.105301](https://doi.org/10.1016/j.chilyouth.2020.105301)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2020

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

de Wied, M., van der Graaff, J., de Rooij, G., Scheepers, F., Hoekstra, P. J., Branje, S., & van de Schoot, R. (2020). The role of client empathy in treatment outcome in a sample of adolescents referred to forensic youth psychiatric services. *Children and Youth Services Review*, 118, 1-8. [105301].  
<https://doi.org/10.1016/j.chilyouth.2020.105301>

#### **Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

#### **Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



# The role of client empathy in treatment outcome in a sample of adolescents referred to forensic youth psychiatric services



Minet de Wied<sup>a,\*</sup>, Jolien van der Graaff<sup>a</sup>, Guido de Rooij<sup>b</sup>, Floor Scheepers<sup>c</sup>, Pieter J. Hoekstra<sup>d</sup>, Susan Branje<sup>a</sup>, Rens van de Schoot<sup>e</sup>

<sup>a</sup> Department of Youth & Family, Faculty of Social and Behavioural Sciences, Utrecht University, Utrecht, the Netherlands

<sup>b</sup> Accare Youth Forensic Psychiatry, Zwolle & Deventer, the Netherlands

<sup>c</sup> Department of Psychiatry, UMC Utrecht, Brain center, Utrecht, the Netherlands

<sup>d</sup> University of Groningen, University Medical Center Groningen, Department of Child and Adolescent Psychiatry, Groningen, the Netherlands

<sup>e</sup> Department of Methods and Statistics, Faculty of Social and Behavioural Sciences, Utrecht University, Utrecht, the Netherlands

## ARTICLE INFO

### Keywords:

Empathy  
Adolescents  
Youth forensic psychiatry  
Treatment outcome

## ABSTRACT

Starting from the assumption that empathy is crucial in the therapeutic process, the current study explored whether client empathy before treatment relates to treatment outcome, whether client empathy is subject to change in the first six months of treatment, whether such change relates to treatment outcome and whether therapist factors relate to possible changes in client empathy. In total 90 adolescents treated by 31 therapists at forensic psychiatric services participated in the study. Client empathy was assessed with self-report questionnaires of affective and cognitive empathy at intake and again at six months of treatment. Therapeutic change was rated by their therapist. Client empathy before treatment was not systematically related to treatment outcome. Cognitive empathy tended to improve during treatment, stronger in girls than boys, and depending in part on the therapist's gender: Under conditions of a male (not female) therapist boys reported less improvement in cognitive empathy than girls. The most consistent study result was that improvement in cognitive empathy contributed positively to treatment outcome. The study provides new data on the role of client empathy in the treatment of forensic youth psychiatric patients. If replicated, these findings have important implications for treatment and training in juvenile forensic psychiatry.

## 1. Introduction

Therapist empathy is known to be essential in establishing a good therapeutic relationship (e.g., Ackerman & Hilsenroth, 2003; Nienhuis et al., 2018) and therapeutic change (e.g., Greenberg, Elliott, Watson, & Bohart, 2001; Keijsers, Schaap, & Hoogduin, 2000; Moyers, Houck, Rice, Longabaugh, & Miller, 2016). Though client characteristics and interpersonal behaviour are expected to contribute to the therapeutic process as well (Ross, Polaschek, & Ward, 2008; Keijsers et al., 2000), little is known about the role of client empathy in treatment outcome. In the literature we found just one study demonstrating that client reported affective empathy moderates treatment effects of a social skills training program in a sample of justice-involved adolescents (van der Stouwe, Asscher, Hoeve, van der Laan, & Stams, 2018). The social skills training was effective in reducing hostile intent among juveniles with high, but not low levels of affective empathy. The current study

examined the role of both affective and cognitive empathy in treatment outcome among male and female adolescents receiving treatment as usual (TAU) at forensic youth psychiatric services.

Empathy is a multidimensional construct, including cognitive and affective components with trait and state-like properties (Cuff, Brown, Taylor, & Howat, 2016). Cognitive empathy refers to understanding another person's emotions, through simple associations or more sophisticated perspective-taking processes. Affective empathy refers to the vicarious experience of another person's emotions. A distinction is often made between matching of emotions (emotional contagion), feeling for another person (sympathy/empathic concern) and feeling distress in response to another person's distress (personal distress). Furthermore, while empathy is typically considered a stable personality characteristic (trait empathy), it is also context-dependent (Engen & Singer, 2012; Main, Walle, Kho, & Halpern, 2017). Empathy is a dynamic interpersonal process, depending in part on the relationship

\* Corresponding author at: Department of Youth & Family, Faculty of Social and Behavioural Sciences, Utrecht University, P.O. Box 80140, 3508 TC Utrecht, the Netherlands.

E-mail address: [m.dewied@uu.nl](mailto:m.dewied@uu.nl) (M. de Wied).

<https://doi.org/10.1016/j.childyouth.2020.105301>

Received 25 February 2020; Received in revised form 28 July 2020; Accepted 29 July 2020

Available online 02 August 2020

0190-7409/© 2020 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

between the empathizer and person being empathized, personal attributes, and other contextual elements (Main et al., 2017).

Client empathy could contribute in different ways to treatment outcome. First, as attachment lays the foundation for the healthy development of empathy (Stern & Cassidy, 2018), impairments in empathy may be associated with attachment schemes that make it difficult to establish good interpersonal relationships, with consequences for treatment outcome. Second, although therapist empathy is essential to therapy, research shows that clients' perception of their therapist's empathy has a stronger effect on treatment outcome than observer ratings and therapists' own reports of their empathic skills (Greenberg et al., 2001; Marshall et al., 2003; Nienhuis et al., 2018), indicating that therapist empathy must be seen and felt by the client. Client empathy is likely to affect the perception and acceptance of therapist empathy and therefore also treatment outcome. Third, though therapists are professionally trained to establish a good therapeutic relationship, it is conceivable that they engage more easily with clients who are friendly and empathetic than with clients who are negative and hostile. Last but not least, empathy is a cornerstone of the broader concept of mentalizing, that is, the awareness of mental states in ourselves and others (Allen, Fonagy, & Bateman, 2008). Research in the field of mentalization suggests that effective treatment depends on the mentalizing skills of both client and therapist and that clients must be able to mentalize in order to benefit from therapy (Allen et al., 2008; Bateman & Fonegy, 2017). Interventions aimed at enhancing clients' mentalizing capacity reduce clinical symptoms and improve the quality of life in adolescents who are impaired in mentalizing, such as those suffering from symptoms of borderline personality disorder (Bo et al., 2017; Laurensen et al., 2014). Based on this research we may expect that initial levels of client empathy and empathy improvement contributes to treatment outcome, especially in clients with usually low levels of empathy.

Low empathy is common among juvenile offenders (Jolliffe & Farrington, 2007). Meta-analytic studies show that self-reported empathy, especially cognitive empathy, relates negatively to offending (Jolliffe & Farrington, 2004; van Langen, Wissink, van Vugt, van der Stouwe, & Stams, 2014), although the strength of the relationship depends on factors such as sex, age, intelligence and instruments used. Furthermore, impairments in empathy are found to be associated with many psychiatric disorders (Farrow & Woodruff, 2007). Well documented are deficits in perspective taking in individuals with autism spectrum disorders (e.g., Baron-Cohen, 2002) and impaired cognitive and affective empathy in children and adolescents with conduct problems (de Wied, Gispens-de Wied, & van Bortel, 2010; Pijper, de Wied, van Goozen, & Meeus, 2017). Thus, healthcare professionals in clinical forensic settings often work with clients who are impaired in their empathic functioning. Knowledge about the role of client empathy in the therapeutic process is therefore of great importance.

Longitudinal research with healthy adolescents demonstrates that while affective empathy remains fairly stable, levels of cognitive empathy generally increase during adolescence (van der Graaff et al., 2014), which seems to be related to ongoing functional and structural development of the so-called 'social brain' (Overgaauw, van Duijvenvoorde, Moor, & Crone, 2015; van den Bos, de Rooij, Sumter, & Westenberg, 2016). Gender differences in empathy are frequently found, with girls reporting higher levels of empathy than boys (Lam, Solmeyer, & McHale, 2012; Silke, Brady, Boylan, & Dolan, 2018), and showing a stronger increase in cognitive empathy during adolescence (van der Graaff et al., 2014). From early adolescence boys are found to selectively report less empathy in response to male peers, whereas girls report increasingly more empathy towards persons of the same and opposite sex (Bryant, 1982; Olweus & Endresen, 1998; Stuijzand et al., 2016). The selective impairment in same-sex empathy among male (not female) adolescents has been explained in terms of male competition, driven in part by increasing levels of testosterone, which is known to constrain empathy (Stuijzand et al., 2016). Intuitively, such processes could be seen to hinder the establishment of a good therapeutic

relationship between male clients and male therapist and therefore also the enhancement of client empathy. As yet, we know very little about the process of client empathy in treatment settings, nor about the natural development of empathy in forensic youth psychiatric patients.

Empathy is thought to develop in relationship with parents and peers, depending in part on the quality of the relationship (Boele et al., 2019). Therefore, it seems plausible to assume that in a clinical setting the development of empathy is partly dependent on the therapeutic relationship. Caring for the client and accurate perspective taking are considered essential to the therapeutic process (Rogers, 1957), just like therapist personality characteristics as being friendly, warm, and open (see Ackerman & Hilsenroth, 2003; Ross et al., 2008; Keijsers et al., 2000). Clients may feel accepted, confident, and connected which creates a trusting milieu in which client empathy can develop.

### 1.1. Aim of the study

The main aim of this study was to examine whether client reported empathy before and during treatment contributes to therapist reported outcome in a sample of forensic youth psychiatric patients. The following questions were addressed: (1) Is client empathy before treatment related to treatment outcomes at six months? (2) Is client empathy subject to change? (3) Is empathy change related to treatment outcome? (4) Do therapist factors play a role in client's empathy change?

Client empathy was assessed with self-report questionnaires of affective and cognitive empathy at intake and again after six months of treatment. Treatment outcome at six months was rated by their therapist. Based on the assumption that effective treatment requires mentalizing on the part of both the patient and therapist, we expected to find a positive relationship between initial levels of client empathy and therapist reported outcome at six months. Mentalizing is common practice in a wide range of therapies, especially in cognitive therapy (Allen et al., 2008), which may enhance client's mentalizing capabilities, including empathic skills. Also, as cognitive empathy is found to increase during adolescence (van der Graaff et al., 2014), we expected to find an increase in cognitive empathy as a result of treatment or natural growth. Furthermore, based on theoretical and empirical evidence that enhancing the mentalizing skills of clients reduces clinical symptoms (Allen et al., 2008), we expected to find a positive relationship between client reported improvement in empathy at six months and therapist reported treatment outcome. Possible influences of therapist factors (empathy, personality and gender) were further explored.

## 2. Method

### 2.1. Participants

The study was approved by the Ethical Committee of the Faculty of Social Sciences, Utrecht University. Participants were adolescent clients recruited from out-patient units of Accare Forensic Youth Psychiatry (Accare FJP) in the northern part of the Netherlands: Assen, Deventer, Emmen, Groningen, Leeuwarden, and Zwolle. Young people are referred to Accare FJP for reasons including serious oppositional behaviour (verbal aggression, threats, running away), aggression (assault, destruction), sex crimes and serious school drop-out rates. Clients who were referred for assessment and treatment between January 2015 and June 2016 were approached for participation (no exclusion criteria). In total 132 clients participated in the first phase of the study, 96 clients also participated in the second phase of the study. The attrition was due to a relatively high number of no-shows to treatment ( $n = 22$  missed most to all sessions), and a smaller amount of true study dropouts who were out of focus or did not respond in the second phase ( $n = 14$ ). The no-shows ( $M = 16.14$ ,  $SD = 0.45$ ) and study dropouts ( $M = 16.64$ ,  $SD = 0.57$ ) were both significantly older than those who completed the study ( $M = 14.84$ ,  $SD = 0.22$ ),  $F(2, 129) = 6.70$ ,  $p = .002$ . The groups

did not differ with respect to gender,  $\chi^2(2) = 0.29$ , *ns*, education,  $F(2, 125) = 0.24$ , *ns*, nor with respect to empathy reported at intake,  $F(8, 252) = 1.13$ , *ns*. Moreover, because of missing data on the empathy questionnaires at the first or second measurement ( $n = 5$  had > 30% omissions), and complete missing data on therapist reported behaviour change ( $n = 1$ ), the data for this study were obtained from  $N = 90$  clients (62 boys, 28 girls), aged between 11 and 22 years ( $M_{\text{boys}} = 14.79$ ,  $SD = 2.30$ ;  $M_{\text{girls}} = 15$ ,  $SD = 1.86$ ). We used complete case deletion because it is straightforward and acceptable with respect to bias, especially with small numbers, although it may reduce power (Peeters, Zondervan-Zwijnenburg, Vink, & van de Schoot, 2015).

Diagnostics were established according to the DSM-IV-TR (APA, 2000) criteria by a multidisciplinary team, including a child psychiatrist, psychologist, system therapist and remedial educationalist. The most prevalent disorders were attention-deficit/hyperactivity disorder (ADHD, 27.8%), conduct problems, including oppositional defiant disorder and conduct disorder (CP, 23.3%), autism spectrum disorder (ASD, 22.2%) and internalizing disorders, including major depressive disorder, generalized anxiety disorder and posttraumatic stress disorder (INT, 20%). Few clients (6.7%) met criteria for other disorders such as reactive attachment disorder or intellectual disabilities. Comorbidity was high: 62% were comorbid for one or more disorders. The most common ones were ADHD, CP, and INT. The prevalence of disorders was different for boys and girls, with relatively more girls than boys showing INT, and more boys than girls showing CP,  $\chi^2(4) = 9.952$ ,  $p = .04$ . Most clients received more than one kind of therapy, including cognitive behavioural therapy ( $n = 39$ ), psychomotor therapy ( $n = 25$ ), systemic therapy ( $n = 23$ ), and/or functional family therapy ( $n = 11$ ), some in combination with medication ( $n = 18$ ). A fewer number received psychoeducation ( $n = 9$ ), eye movement desensitization and reprocessing ( $n = 7$ ), or mentalizing-based treatment ( $n = 6$ ).

The total of 90 clients were treated by 31 therapists (17 males, 14 females). Male and female clients were equally distributed across male and female therapists ( $\chi^2 < 1$ ). Also, clients with ASD, ADHD, CP, and INT were equally distributed across male and female therapist,  $\chi^2(3) = 5.57$ , *ns*, though relatively more clients with ASD were treated by female ( $n = 15$ ) than by male ( $n = 5$ ) therapist (see Table 1).

## 2.2. Procedure

During the first stage of the intake process clients and their parents received an information letter in which they were asked to participate in a study on the role of empathy in the therapeutic process. Those who were willing to participate were also verbally informed. Verbal and written consent was obtained from clients as well as from parents if clients were below age 16. Clients were asked to fill out two empathy questionnaires at intake (T1) and again after six months of treatment (T2). They received a gift voucher (5 euros) for participation.

**Table 1**

Distribution of male and female patients and principle diagnoses across male and female therapists.

	Male therapist #	Female therapist #	Total #
Client gender:			
Boys	29	33	62
Girls	13	15	28
Primary diagnosis			
ADHD	13	12	25
CP	10	11	21
ASD	5	15	20
INT	11	7	18
Else	3	3	6

Note: ADHD = Attention Deficit Hyperactivity Disorder; CP = Conduct Problems; ASD = Autism Spectrum Disorder, INT = internalizing problems.

Therapists who gave treatment to any of the participating clients were asked to fill out the empathy questionnaire and personality inventory. They also assessed their client's behaviour after six months of treatment. Afterwards participants were informed about the study results.

## 2.3. Measures

### 2.3.1. Client empathy

Client empathy was assessed with two self-report questionnaires: the revised Dutch versions of the Interpersonal Reactivity Index (IRI, Davis, 1983; Dutch revision by van Outsem et al., 2006) and the Basic Empathy Scale (BES, Jolliffe & Farrington, 2006; Dutch version by van Langen, Wissink, Stams, Asscher, & Hoeve, 2014). The IRI consists of 28 items, 7 items for each of the four subscales: Empathic Concern (EC), Personal Distress (PD), Perspective Taking (PT), and Fantasy (FS). The subscales EC and PD weight aspects of affective empathy, PT and FS weight aspects of cognitive empathy. In the revised Dutch version the wording of items is simplified for use with juvenile offenders. Sample items included "I am often quite touched by things that I see happen" (EC), "I tend to lose control during emergencies" (PD), "I try to look at everybody's side of a disagreement before I make a decision" (PT), and "After seeing a play or movie, I have felt as though I were one of the characters" (FS). Items were scored on a 5-point scale, ranging from 1 (not at all like me) to 5 (very much like me).

EC and PD were significantly positively correlated at T1 ( $r = 0.34$ ,  $p < .01$ ) and T2 ( $r = 0.31$ ,  $p < .01$ ), as were PT and FS at T2 ( $r = 0.32$ ,  $p < .01$ ), though not at T1 ( $r = 0.17$ , *ns*). For the sub scales EC and PD (affective empathy) and the sub scales PT and FS (cognitive empathy) average scores were calculated to reduce the number of data points and to perform the same analyses with the IRI and BES scores. Cronbach's alphas revealed acceptable internal consistency at T1 and T2 for mean affective ( $\alpha_{t1} = 0.71$ ;  $\alpha_{t2} = 0.74$ ) and cognitive ( $\alpha_{t1} = 0.69$ ;  $\alpha_{t2} = 0.76$ ) empathy scores. Both scores remained fairly consistent over T1 and T2 (see Table 2). Furthermore, mean affective and cognitive empathy scores were moderately related at T1 ( $r = 0.46$ ,  $p < .001$ ) and slightly weaker at T2 ( $r = 0.39$ ,  $p < .001$ ), suggesting that both dimensions are related but distinct constructs.

The BES was applied next to the IRI because both questionnaires assess different aspects of affective and cognitive empathy. The BES consists of 20 items, measuring affective empathy (11 items) and cognitive empathy (9 items). Unlike the IRI, the affective empathy subscale of the BES is designed to assess the sharing of emotions rather than empathic concern. The cognitive empathy subscale is thought to assess the ability to understand detailed emotions of another person rather than the broad ability to take another person's perspective. Also different from the IRI, the BES is based on the four "basic emotions", that is, fear, sadness, anger and happiness. An example item of the affective empathy scale is "When I am among friends who are afraid, I feel afraid too". An example of the cognitive empathy scale is "I can usually realize quickly when a friend is angry". Items were scored on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alphas revealed good reliability for affective empathy at T1 (0.81) and T2 (0.84), and acceptable reliability for cognitive empathy at T1 (0.66) and T2 (0.66). Test-retest reliability scores were somewhat higher for affective than for cognitive empathy (see Table 2). Like the IRI scores, affective and cognitive empathy scores were significantly but weakly related at T1 ( $r = 0.25$ ,  $p = .02$ ) and T2 ( $r = 0.24$ ,  $p = .02$ ), suggesting that both dimensions are related but distinct constructs. Furthermore, the correlations between the cognitive dimensions of the IRI and BES at T1 ( $r = 0.41$ ,  $p = .001$ ) and T2 ( $r = 0.43$ ,  $p = .001$ ) as well as the affective dimensions at T1 ( $r = 0.60$ ,  $p = .001$ ) and T2 ( $r = 0.65$ ,  $p = .001$ ) show moderate to strong convergence, which supports the construct validity of both empathy measures.

### 2.3.2. Therapist empathy

Therapist affective and cognitive empathy was assessed with the



**Table 2**

Means (SD) of client empathy measure at T1 and T2, therapist reported outcome at T2, and correlations between T1 and T2 measurements.

	T1		<i>t</i> ( <i>df</i> = 88)	T2		<i>t</i> ( <i>df</i> = 88)	<i>r</i> <sub>T1xT2</sub> <i>N</i> = 90
	Girls <i>n</i> = 28 <i>M</i> ( <i>SD</i> )	Boys <i>n</i> = 62 <i>M</i> ( <i>SD</i> )		Girls <i>n</i> = 28 <i>M</i> ( <i>SD</i> )	Boys <i>n</i> = 62 <i>M</i> ( <i>SD</i> )		
BES <sub>aff</sub>	3.29 (0.81)	2.91 (0.76)	−2.16*	3.38 (0.81)	3.03 (0.78)	−1.94	0.70**
BES <sub>cog</sub>	3.97 (0.58)	3.91 (0.56)	< 1	4.14 (0.58)	3.94 (0.48)	−1.69	0.42**
IRI <sub>aff</sub>	3.07 (0.57)	2.65 (0.51)	−3.45**	3.18 (0.67)	2.79 (0.55)	−2.89*	0.53**
IRI <sub>cog</sub>	2.89 (0.53)	2.82 (0.64)	< 1	3.17 (0.65)	2.82 (0.67)	−2.32*	0.63**
TRO	–	–		5.81 (1.88)	5.60 (1.75)	< 1	

Note: \*  $p < .05$ , \*\*  $p < .001$ . BES = Basic Empathy Scale (1–5); IRI = Interpersonal Reactivity Index (1–5); aff = affective empathy, cog = cognitive empathy; TRO = therapist rated outcome (1–10).

Dutch version of the original IRI (Hawk et al., 2013). Hawk and colleagues have demonstrated adequate internal consistency and validity of the Dutch version in a large sample of healthy adolescents and adults. In the current study, the primary components of the affective (EC) and the cognitive (PT) subscales were used to assess therapist empathy. Cronbach's alphas showed good reliability for PT (0.76) and acceptable reliability for EC (0.60). EC and PT were moderately related ( $r = 0.43$ ,  $p = .02$ ).

### 2.3.3. Therapist personality characteristics

The short version of the Revised NEO Personality Inventory (NEO-PI-R, Hoekstra, Ormel, & de Fruyt, 2007), the NEO-FFI was used to assess the five domains of personality: Extraversion (E), neuroticism (N), agreeableness (A), conscientiousness (C), and openness (O). Extraversion refers to characteristics such as being sociable, adventurous and assertive; Neuroticism to being tense, shy and not self-confident; Agreeableness to being warm, sympathetic and forgiving; Conscientiousness to being thorough, organized and efficient; Openness refers to characteristics as being artistic, imaginative and unconventional. The NEO-FFI comprises 60 items, 12 items per scale, scored on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Cronbach's alphas for the therapist sample revealed good reliability for E (0.83), N (0.83), and C (0.77), acceptable reliability for O (0.61), but unacceptable low reliability for domain A (0.31). Domain A was therefore excluded from further analyses.

### 2.3.4. Therapist reported outcome (TRO)

Client behaviour was rated by the therapist after six months of treatment. Changes in four areas of client functioning were assessed, specifically, (1) psychopathology, (2) externalizing behaviour, (3) behaviour at home, and (4) behaviour at school. Changes in these four areas are used to monitor behaviour improvement at Accare FJP. Improvement was rated on a 10-point scale (one for each area), ranging from 1 (no improvement) to 10 (strong improvement). Total scores were calculated ( $\alpha = 0.80$ ) and included in the analyses of the data.

## 2.4. Data analyses

Preliminary analyses were conducted to examine (a) gender differences in client empathy, therapist empathy and personality characteristics; and (b) differences in client empathy across DSM disorders. To examine whether client reported empathy *before* (T1) or *during* (T2-T1) treatment related to TRO at six months, stepwise multiple regression analyses (MRA) were performed with client gender as a possible dichotomous moderator (0,1). Mixed model ANOVAs were used to examine whether client reported empathy was subject to change during treatment, with client gender as the between-factor and time of assessment (T1/T2) as the within-factor. Stepwise MRAs were also conducted to examine whether therapist factors influenced possible changes in client empathy during treatment. Continuous predictors were all standardized. Interaction terms were created by multiplying

client gender with predictors. Finally, factorial between groups ANOVAs with therapist and client gender as the independent variables and empathy change as the dependent variable, were conducted to examine the effects of therapist gender in the development of client empathy. A significance level of 0.05 was adopted, with the Bonferroni correction applied in case of multiple testing.

## 3. Results

### 3.1. Preliminary analyses

Means and standard deviations for boys and girls on client empathy at T1 and T2 are presented in Table 2. At T1, girls obtained significantly higher scores than boys on affective empathy assessed with the IRI and BES. No significant differences emerged on cognitive empathy at T1. At T2, girls obtained significantly higher scores than boys on both affective and cognitive empathy assessed with the IRI, not with the BES.

Means and standard deviations for therapist empathy and personality characteristics are presented in Table 3. No gender differences were observed in therapist empathy. Likewise, no gender differences were observed in therapists' personality characteristics, except for gender differences in neuroticism. Females obtained higher scores than males. Bivariate correlations between all study variables are presented in Table 4.

MANOVAs were used to examine differences in client empathy across DSM disorders (ADHD, CP, ASD, INT). Affective and cognitive empathy were both included as the dependent variables, DSM disorders as the independent variable. Separate analyses were conducted for empathy assessed with the IRI and BES. Results revealed that there were no significant differences in client empathy across DSM disorders:  $F_{IRI}(6, 160) = 1.90$ , *ns*;  $F_{BES}(6, 160) = 1.02$ , *ns*. The absence of differences in empathy across DSM disorders indicates that disorder is not a likely confounder.

**Table 3**

Means (SD) of therapist empathy and personality characteristics.

Variable	Female <i>n</i> = 14 <i>M</i> ( <i>SD</i> )	Male <i>n</i> = 15 <i>M</i> ( <i>SD</i> )	<i>t</i> ( <i>df</i> = 27) <sup>1</sup>
IRI			
Empathic concern	3.79 (0.61)	3.68 (0.35)	< 1
Perspective taking	3.80 (0.48)	3.86 (0.49)	< 1
NEO-FFI			
Neuroticism	2.44 (0.39)	2.09 (0.47)	−2.17*
Extraversion	3.52 (0.46)	3.78 (0.28)	1.46
Conscientiousness	3.76 (0.45)	3.82 (0.40)	< 1
Openness	3.29 (0.37)	3.42 (0.47)	< 1

Note: \*  $p < .05$ . IRI = Interpersonal Reactivity Index; NEO-FFI = NEO Five Factor Inventory. 1: IRI and NEO-FFI data of two male therapists were missing.

**Table 4**  
Bivariate correlations among main study variables.

		2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	T1_BES-aff	0.25*	0.60**	0.48**	-0.37**	-0.09	-0.02	-0.07	0.28*	0.13	0.13	0.02	0.13	0.01	0.03
2	T1_BES-cog	-	-0.01	0.41**	-0.13	-0.60**	0.07	-0.18	-0.10	0.01	0.13	-0.06	0.02	-0.07	-0.26*
3	T1_IRI-aff		-	0.46**	-0.18	-0.08	-0.42**	-0.09	0.30**	0.16	-0.09	0.14	0.06	0.11	0.14
4	T1_IRI-cog			-	-0.08	-0.15	-0.18	-0.32**	0.02	0.06	-0.05	0.16	0.07	0.05	0.01
5	$\Delta$ _BES-aff				-	0.20	0.35**	0.28**	-0.15	-0.05	-0.14	0.10	-0.01	0.07	0.12
6	$\Delta$ _BES-cog					-	0.13	0.36**	-0.12	-0.05	-0.15	0.10	-0.06	0.16	0.27**
7	$\Delta$ _IRI-aff						-	0.30**	-0.21	-0.21	0.14	-0.14	0.02	-0.04	-0.04
8	$\Delta$ _IRI-cog							-	-0.13	0.03	0.05	-0.15	-0.08	-0.07	0.28**
9	IRI_PT									0.63**	0.27*	-0.21*	0.11	-0.42**	0.10
10	IRI_EC									-	0.29**	-0.38**	0.16	-0.53**	0.16
11	NEO-N										-	-0.60**	-0.15	-0.48**	-0.26*
12	NEO-E											-	0.19	0.70**	0.00
13	NEO-O												-	0.20	0.16
14	NEO-C													-	0.04
15	TRO														-

Note: \*  $p < .05$ , \*\*  $p < .001$ . T1 = client empathy at intake;  $\Delta$  = client empathy change; BES = Basic Empathy Scale; IRI = Interpersonal Reactivity Index; aff = affective empathy; cog = cognitive empathy; IRI\_PT = therapist perspective taking; IRI\_EC = therapist empathic concern; NEO-N = neuroticism; NEO-E = extraversion; NEO-O = openness; NEO-C = conscientiousness; TRO = therapist reported outcome.

### 3.2. Client empathy before treatment and TRO

To examine whether initial levels of client empathy contribute to treatment outcome (TRO), stepwise MRAs were performed with client gender and affective and cognitive empathy as the predictors and TRO as the criterion variable. All predictors were entered in step 1, the interaction terms (client gender X empathy) in step 2. The predictors did not correlate too highly ( $VIFs < 2$ , Tolerance  $> 0.9$ ), and the assumptions of normality, linearity, and homoscedasticity of residuals were checked. Separate analyses were performed for empathy assessed with the IRI and BES ( $\alpha = 0.05/2 = 0.025$ ).

The MRA run on the BES-scores produced significant results: cognitive empathy entered into the equation, accounting for 7% of the variance in TRO,  $F(1, 88) = 6.54$ ,  $p = .012$ . Cognitive empathy was the only significant predictor, relating negatively with TRO,  $\beta = -0.26$ ,  $t = -2.56$ ,  $p = .012$ . Interaction terms did not enter the equation. Hence, different from expectations, the BES-scores suggest that lower levels of cognitive empathy at intake are associated with higher levels of treatment outcome. The MRA run on the IRI-scores was non-significant. Controlling for therapist factors in the first step did not change the results.

### 3.3. Client empathy change after treatment

To examine whether client empathy changed during the first six months of treatment, mixed model ANOVAs were conducted, with client gender as the between-factor and time (T1, T2) as the within-factor. Separate analyses were performed for affective and cognitive empathy assessed with the BES and IRI ( $\alpha = 0.05/4 = 0.013$ ). The assumptions of normality and homogeneity of variance for a mixed model ANOVA were not violated (Shapiro-Wilk ( $W$ ) tests  $> 0.05$ , all  $F_{\max} < 2$ ).

BES-scores: The ANOVA results for affective empathy revealed a marginal significant main effect for gender,  $F(1, 88) = 4.97$ ,  $p = .028$ ,  $\eta_p^2 = 0.05$ , with higher scores for girls than for boys. There was no main effect for time  $F(1, 88) = 2.41$ ,  $ns$ , nor a significant interaction,  $F(1, 88) = 0.058$ ,  $ns$ . For cognitive empathy, no significant main effects were found for gender,  $F(1, 88) = 1.50$ ,  $ns$ , nor for time,  $F(1, 88) = 1.99$ ,  $ns$ , nor a significant interaction,  $F(1, 88) = 1.08$ ,  $ns$ .

IRI-scores: The ANOVA results for affective empathy revealed a significant main effect for gender,  $F(1, 88) = 14.45$ ,  $p < .001$ ,  $\eta_p^2 = 0.13$ , but no significant effect for time,  $F(1, 88) = 3.99$ ,  $p = .049$ ,  $\eta_p^2 = 0.04$ , nor a significant interaction  $F(1, 88) = 0.052$ ,  $ns$ . Overall, girls obtained higher scores than boys. For cognitive empathy, the analysis revealed a marginal significant main effect for time,  $F(1,$

88) = 4.91,  $p = .029$ ,  $\eta_p^2 = 0.05$ , with higher scores at T2 compared to T1. The analysis revealed no significant main effect for gender,  $F(1, 88) = 2.50$ ,  $ns$ , but a marginal significant interaction,  $F(1, 88) = 5.29$ ,  $p = .024$ ,  $\eta_p^2 = 0.06$ . Follow-up paired samples  $t$ -tests conducted for boys and girls separately, revealed that the improvement in cognitive empathy from T1 to T2 was almost significant for girls,  $t(27) = -2.60$ ,  $p = .015$ , not for boys,  $t(61) = 0.08$ ,  $ns$ .

### 3.4. Client empathy change and TRO

To examine whether changes in client empathy related to treatment outcome, difference scores ( $\Delta$ -empathy) were calculated by subtracting empathy assessed at T1 from empathy assessed at T2 (higher scores revealing more improvement). Stepwise MRAs were conducted with client gender and  $\Delta$ -empathy scores as predictors and TRO as criterion variable. All predictors were entered in step 1 and interaction terms (client gender X,  $\Delta$ -empathy) in step 2. The predictors did not correlate too highly ( $VIFs < 2$ , Tolerance  $> 0.8$ ) and the assumptions of normality, linearity, and homoscedasticity of residuals were checked. Separate analyses were performed for empathy assessed with the IRI and BES ( $\alpha = 0.05/2 = 0.025$ ).

The MRA run on the BES-scores produced significant results:  $\Delta$ -cognitive empathy entered into the equation, accounting for 8% of the variance in TRO,  $F(1, 88) = 7.12$ ,  $p = .009$ .  $\Delta$ -Cognitive empathy was the only significant predictor, relating positively to TRO,  $\beta = 0.27$ ,  $t = 2.67$ ,  $p = .009$ . Interaction terms did not enter the equation.

The MRA run on the IRI-scores produced similar results: only  $\Delta$ -cognitive empathy entered the equation, accounting for 8% of the variance in TRO,  $F(1, 88) = 7.70$ ,  $p = .007$ , relating positively to TRO,  $\beta = 0.28$ ,  $t = 2.77$ ,  $p = .007$ . Thus, MRA results revealed consistently that self-reported enhancement in cognitive empathy relates positively to TRO. Controlling for therapist factors in the first step did not change the observed relationships.

### 3.5. Therapist factors and empathy change

To examine whether therapist factors are involved in client empathy change ( $\Delta$ -empathy), stepwise MRAs were conducted with client gender and therapist factors as predictors in step 1, interaction terms (client gender X therapist factors) in step 2, and client  $\Delta$ -empathy as the criterion variable. Separate analyses were performed for each criterion variable (4) with each therapist factor (7), thus 28 analyses in total. With the Bonferroni correction applied, level of significance was  $\alpha = 0.05/28 = 0.002$ . The intraclass correlation for change in the IRI and BES scores varied between 5% and 11.9% and was not taken into

account, accordingly (Hox, Moerbeek, & van de Schoot, 2017).

### 3.5.1. Therapist empathy & personality characteristics

MRAs with therapist empathy as predictors were non-significant, except for one in which  $\Delta$ -affective empathy assessed with the BES was the criterium variable. The interaction between client gender and therapist's perspective taking skills (PT) entered the equation, explaining 11% of the variance,  $F(1, 86) = 10.58, p = .002$ , and relating negatively to  $\Delta$ -affective empathy,  $\beta = -0.33, t = -0.3.25, p = .002$ . No other variables entered the equation. For boys, therapist PT and  $\Delta$ -affective empathy were not related ( $r = -0.003, ns$ ), whereas for girls they were significantly inversely related ( $r = -0.60, p = .001$ ). The negative relationship for girls is counterintuitive, suggesting that girls show less improvement in affective empathy when the therapist shows better perspective taking skills. All MRAs with therapist personality characteristics as predictors were non-significant, indicating that therapist personality characteristics were not related to changes in client empathy during treatment.

### 3.5.2. Therapist gender

Factorial between groups ANOVAs were conducted to examine the interplay between therapist and client gender in the development of empathy. The ANOVA performed on the IRI  $\Delta$ -cognitive empathy scores revealed a marginally significant interaction between therapist and client gender,  $F(1, 86) = 8.77, p = .004, \eta_p^2 = 0.09$ , but no significant main effects for client,  $F(1, 86) = 6.73, p = .011, \eta_p^2 = 0.07$ , nor therapist gender,  $F(1, 86) = 0.12, ns$ . Follow-up independent  $t$ -tests revealed different patterns for boys and girls depending on therapist gender: Under conditions of a male therapist, boys reported significantly less improvement in cognitive empathy than girls,  $t(40) = -3.53, p = .001$ . No such gender differences emerged under conditions of a female therapist  $t(46) = 0.29, ns$ . Mean IRI  $\Delta$ -cognitive empathy scores ( $+/-$  SE) broken down by gender are depicted in Fig. 1. Additional ANCOVAs were performed on IRI  $\Delta$ -cognitive empathy scores with empathy at T1, therapist empathy and therapist personality characteristics as the covariates. The analyses gave the same results. The ANOVA results for all other  $\Delta$ -empathy scores were non-significant.

## 4. Discussion

The current study was set up to examine whether client empathy before treatment relates to treatment outcome, whether client empathy is subject to change after six months of treatment, whether such change relates to treatment outcome, and whether therapist factors relate to possible changes in client empathy. Client empathy *before* treatment was not consistently related to treatment outcome. Cognitive empathy tended to improve in the first six months of treatment, stronger in girls than boys, and partly depending on the therapist's gender. Overall, client reported improvement in cognitive (not affective) empathy proved to be a valid predictor of treatment outcome. The study results are only partially in line with expectations and partly different for both client measures of empathy (IRI and BES).

First of all, results did not support the hypothesis that client empathy before treatment contributes to treatment outcome. Except for a negative relationship between cognitive empathy obtained with the BES, none of the current empathy measures were found to relate directly to therapist reported treatment outcome. The inverse relationship between cognitive empathy and treatment outcome was not predicted. Yet, it may be that initially low levels of cognitive empathy relate positively to treatment outcome just because *improvement* relates to success. Patients with low starting values can, hypothetically, grow more than patients who are already at an intermediate or high level with the result that low initial values contribute to success. This would mean that clients with distinct deficits in cognitive empathy are still able to make progress in their empathic skills. Regarding affective empathy, our null findings are basically similar to those obtained by van der Stouwe and colleagues (2018). They too used the BES to assess client affective empathy and found no evidence that initial levels of affective empathy relate directly to treatment effects.

Second, our findings demonstrate that client reported cognitive empathy tends to improve for girls in the first six months of treatment. Marginal significant effects were established for the IRI, not for the BES. By lack of a control group the study does not allow us to determine whether improvement in girl's cognitive empathy was due to therapy or natural growth. In general, girls score higher than boys on questionnaire measures of empathy, and show a stronger increase in cognitive empathy than boys aged 13 to 18 years (e.g., van der Graaff et al., 2014). The current results are important and promising by showing that

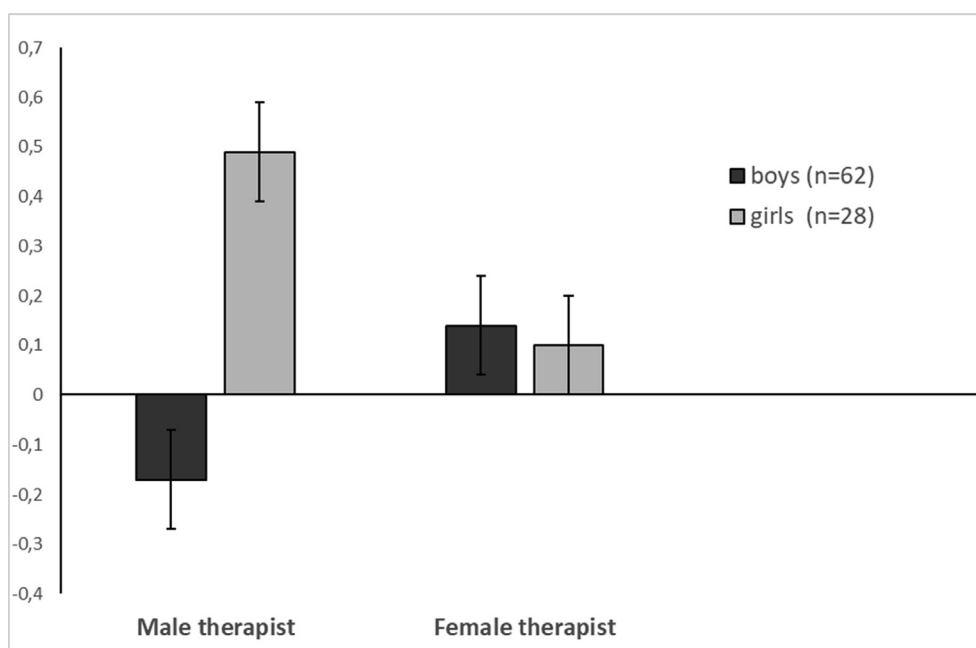


Fig. 1. Mean client  $\Delta$ -cognitive empathy scores assessed with the IRI ( $+/-$  SE) broken down by client and therapist gender.

girls' cognitive empathy tends to improve during the first six months of treatment in forensic youth psychiatry. Perhaps we could have seen a greater increase if we had measured over a longer period of time. Yet, treatment is often limited in duration and therefore it is still important to examine effects over a shorter period of time. Improving empathy is thought to be important because low empathy, especially low cognitive empathy relates to offending (Jolliffe & Farrington, 2004; van Langen et al., 2014) and low empathy is a risk factor for recidivism (e.g., Bock & Hosser, 2014; Lawing, Childs, Frick, & Vincent, 2017; Lodewijks, Doreleijers, de Ruiter, & Borum, 2008).

Interestingly, the progression in cognitive empathy was found to depend partly on the interplay between therapist's and client's gender. Results obtained with the IRI demonstrated that under conditions of a male therapist, boys show significantly less improvement in cognitive empathy than girls. No such gender differences were found under conditions of a female therapist. Because the same results were not demonstrated with the BES, we must be careful when drawing conclusions. However, findings can be explained in the context of previous results (Bryant, 1982; Olweus & Endresen, 1998; Stuijzand et al., 2016). Studies on same-sex versus cross-sex empathy show fairly consistent that young male adolescents report less empathy towards male than towards female peers. It has been supposed that the growing attraction to the other sex in adolescence may enhance male adolescents' empathic responses to females, whereas the entry to a masculine competitive environment may inhibit male adolescents' empathic responses to male competitors (Stuijzand et al., 2016). Competition has been linked to testosterone (e.g., Eisenegger, Kumsta, Naef, Gromoll, & Heinrichs, 2017), which increases greatly during adolescence (Buchanan, Eccles, & Becker, 1992), and competition is known to reduce empathy (Lanzetta & Englis, 1989). If male competition is a factor, male adolescents may be less willing to connect with male therapists than with female therapists and may adopt a defensive attitude, which can limit progress in empathy during treatment. Clearly, it is important to know whether competitive tendencies interfere with the empathic process as part of forensic interventions. If future research can establish that therapist gender is a factor, it may be therapeutically advantageous to consider gender in empathy training programs for adolescents.

Finally and most important, client reported improvement in cognitive (not affective) empathy was found to relate positively to therapist reported treatment outcome. Similar results were obtained for both client measures of empathy, which makes this result more powerful. Findings are in agreement with predictions based on mentalization-based theory and empirical evidence that enhancing the mentalizing capacities reduces clinical symptoms (Allen et al., 2008; Bo et al., 2017; Laurensen et al., 2014). Like mentalizing, cognitive empathy refers to cognitive processes as awareness of distress in others, perspective taking skills, empathic accuracy and understanding emotional states in others. Affective empathy is more distinct from mentalizing in that it refers to the actual sharing of emotions, feeling sympathy or distress. The current study is the first to demonstrate that improvement in cognitive empathy relates to treatment outcome. Significant relations between affective empathy and treatment outcome were not established. Although caution should be exercised in drawing conclusions, these initial results suggest that client reported improvement in affective and cognitive empathy relates differently to treatment outcome.

#### 4.1. Limitations

The current study had some limitations. One limitation is that it was an observational study without a control group and should therefore be considered exploratory. Another limitation is that only self-report questionnaires have been used to assess empathy. Self-report measures of empathy may be affected by social desirability biases (Eisenberg & Fabes, 1990; Zhou, Valiente, & Eisenberg, 2003). This is suggested by research from which it appears that gender differences in empathy are particularly large when using self-report questionnaires (e.g., van der

Graaff et al., 2015) and research showing that sex of the experimenter affects self-reports of empathy in children (Eisenberg & Lennon, 1983). In the current study, the empathy questionnaires were sometimes completed in the presence of the therapist which may have biased the results. As such, future research should not only test whether findings replicate across different samples, but also whether results remain consistent when other verbal, facial or physiological measures of empathy are used. It is important to note that although the results of the BES and IRI were slightly different, the two questionnaires did not yield conflicting results, and both showed that cognitive empathy plays a more significant role in the therapeutic process than affective empathy.

Questionnaire measures of empathy are normally used in longitudinal studies on empathy development through adolescence. The value of self-report measures, however, rests on the assumption that participants can reflect on their behaviour and feelings and are willing to report on it accurately. Because we cannot rely on that in offenders we need to develop tools in which it is less obvious what is being indexed. Another limitation of the current study is that trait-like aspects of both client and therapist empathy were assessed. Because the IRI was used to assess both client and therapist empathy, the results may have been biased by common-method variance. More importantly, however, clinical empathy involves more dimensions than those currently operationalized and studied (e.g., Halpern, 2014) and other techniques are needed to examine in full the dynamics of empathy in clinical encounters. Also, future research will have to pay more attention to the possible role of system and contextual factors in the therapeutic relationship and treatment success, especially in correctional settings (Ross et al., 2008). Finally, the small sample size limited the testing of more complex models and the assessment of differences between clinical groups. The current study should be replicated with a larger dataset in which the nested structure can be investigated more fully, also in relation to different DSM classifications and treatment methods.

#### 4.2. Conclusions

Despite these limitations, the results of this study provide important new data on the possible influence of client empathy on treatment outcomes in a sample of forensic juvenile psychiatric patients. The results demonstrate that client empathy before treatment is not consistently related to treatment outcome, that cognitive empathy tends to change in the first six months of treatment, stronger in girls than boys, and depending in part on the therapist's gender: Under conditions of a male (not female) therapist boys reported significantly less improvement in cognitive empathy than girls. The most critical finding is that client reported improvement in cognitive empathy contributes to therapist reported treatment success. Results from this first explorative study are promising and deserve further investigation.

#### CRedit authorship contribution statement

**Minet de Wied:** Conceptualization, Methodology, Supervision, Writing - original draft, Visualization, Project administration. **Jolien van der Graaff:** Conceptualization, Investigation, Writing - review & editing. **Guido de Rooij:** Conceptualization, Resources, Writing - review & editing. **Floor Scheepers:** Conceptualization, Writing - review & editing. **Pieter J. Hoekstra:** Conceptualization, Resources, Writing - review & editing. **Susan Branje:** Conceptualization, Writing - review & editing. **Rens van de Schoot:** Methodology, Formal analysis, Writing - review & editing.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.



## Acknowledgements

This work was supported by the Dutch Organization of Health Research [729101001]. We thank Christine Gispén-de Wied for her expert advice and support in the preparation of the research and grant application, and Lente Werner for coordinating the data collection.

## References

- Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapeutic alliance. *Clinical Psychological Review*, 23, 1–33. [https://doi.org/10.1016/S0272-7358\(02\)00146-0](https://doi.org/10.1016/S0272-7358(02)00146-0).
- Allen, J. G., Fonagy, P., & Bateman, A. W. (2008). *Mentalizing in clinical practice*. Washington, London, England: American Psychiatric Publishing, Inc.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders, fourth edition, text revision*. Washington, DC: American Psychiatric Association.
- Baron-Cohen, S. (2002). The extreme male brain theory of autism. *Trends in Cognitive Sciences*, 6, 248–254. [https://doi.org/10.1016/S1364-6613\(02\)01904-6](https://doi.org/10.1016/S1364-6613(02)01904-6).
- Bateman, A., & Fonegy, P. (2017). Mentalization-based treatment. *Psychoanalytic Inquiry*, 33, 595–613. <https://doi.org/10.1080/07351690.2013.835170>.
- Bo, S., Sharp, C., Beck, E., Pedersen, J., Gondan, M., & Simonsen, E. (2017). First empirical evaluation of outcomes for mentalization-based group therapy for adolescents with BPD. *Personality Disorders: Theory, Research, and Treatment*, 8, 96–401. <https://doi.org/10.1037/per0000210>.
- Bock, E. M., & Hosser, D. (2014). Empathy as a predictor of recidivism among young adult offenders. *Psychology, Crime & Law*, 20, 101–115. <https://doi.org/10.1080/1068316X.2012.749472>.
- Boele, S., van der Graaff, J., de Wied, M., van der Valk, I. E., Crocetti, E., & Branje, S. (2019). Linking parent-child and peer relationship quality to empathy in adolescence: A multilevel meta-analysis. *Journal of Youth and Adolescence*, 48, 1033–1055. <https://doi.org/10.1007/s10964-019-00993-5>.
- Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development*, 53, 413–425. URL: <https://www.jstor.org/stable/1128984>.
- Buchanan, C. M., Eccles, J. S., & Becker, J. B. (1992). Are adolescents the victims of raging hormones: Evidence for activation effects of hormones on moods and behaviour at adolescence. *Psychological Bulletin*, 111, 62–107. <https://doi.org/10.1037/0033-2909.111.1.62>.
- Cuff, B. M. P., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: A review of the concept. *Emotion Review*, 8, 144–153. <https://doi.org/10.1177/1754073914558466>.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113–126.
- de Wied, M., Gispén-de Wied, C. C., & van Bostel, A. (2010). Empathy dysfunction in children and adolescents with disruptive behavior disorders. *European Journal of Pharmacology*, 626, 97–103. <https://doi.org/10.1016/j.ejphar.2009.10.016>.
- Eisenberg, N., & Fabes, R. A. (1990). Empathy: Conceptualization, measurement and relation to prosocial behavior. *Motivation and Emotion*, 14, 131–149.
- Eisenberg, N., & Lennon, R. (1983). Sex differences in empathy and related capacities. *Psychological Bulletin*, 94, 100–131.
- Eisenegger, C., Kumsta, R., Naef, M., Gromoll, J., & Heinrichs, M. (2017). Testosterone and androgen receptor gene polymorphism are associated with confidence and competitiveness in men. *Hormones and Behavior*, 92, 93–102. <https://doi.org/10.1016/j.yhbeh.2016.09.011>.
- Engen, H. G., & Singer, T. (2012). Empathy circuits. *Current Opinion in Neurobiology*, 22(23), 275–282. <https://doi.org/10.1016/j.conb.2012.11.003>.
- Farrow, T. F. D., & Woodruff, P. W. R. (2007). *Empathy in mental illness*. Cambridge, New York: Cambridge University Press.
- Greenberg, L. S., Elliott, R., Watson, J. C., & Bohart, A. C. (2001). Empathy. *Psychotherapy*, 38, 308–384. <https://doi.org/10.1037/0033-3204.38.4.380>.
- Halpern, J. (2014). Clinical empathy in medical care. In J. Decety (Ed.), *Empathy from bench to bedside* (pp. 229–244). Cambridge, Massachusetts: The MIT Press.
- Hawk, S., Keijsers, L., Branje, S., van der Graaff, J., de Wied, M., & Meeus, W. (2013). Examining the interpersonal reactivity index (IRI) among early and late adolescents and their mothers. *Journal of Personality Assessment*, 95, 96–106. <https://doi.org/10.1080/00223891.2012.696080>.
- Hoekstra, H. A., Ormel, J., & de Fruyt, F. (2007). *NEO-PI-R: Persoonlijkheidsvragenlijst*. Amsterdam: Hogrefe Uitgevers.
- Hox, J. J., Moerbeek, M., & van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications*. Routledge.
- Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior*, 9, 441–476. <https://doi.org/10.1016/j.avb.2003.03.001>.
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the basic empathy scale. *Journal of Adolescence*, 29, 589–611. <https://doi.org/10.1016/j.adolescence.2005.08.010>.
- Jolliffe, D., & Farrington, D. P. (2007). Examining the relationship between low empathy and self-reported offending. *Legal and Criminological Psychology*, 12, 265–286. <https://doi.org/10.1348/135532506X147413>.
- Keijsers, G. P. J., Schaap, C. P. D. R., & Hoogduin, C. A. L. (2000). The impact of interpersonal patient and therapist behaviour on outcome in cognitive-behavior therapy. *Behavior Modification*, 24, 264–297. <https://doi.org/10.1177/0145445500242006>.
- Lam, C. B., Solmeyer, A. R., & McHale, S. M. (2012). Sibling relationships and empathy across the transition to adolescence. *Journal of Youth and Adolescence*, 41, 1657–1670. <https://doi.org/10.1007/s10964-012-9781-8>.
- Lanzetta, J. T., & Englis, B. G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology*, 56, 543–554. <https://doi.org/10.1037/0022-3514.56.4.543>.
- Laurensen, E. M. P., Hutsebaut, J., Feenstra, D. J., Bales, D. L., Noom, M. J., Busschbach, J. J. V., ... Luyten, P. (2014). Feasibility of mentalization-based treatment for adolescents with borderline symptoms: A pilot study. *Psychotherapy*, 51, 159–166. <https://doi.org/10.1037/a0033513>.
- Lawing, K., Childs, K. K., Frick, P. J., & Vincent, G. (2017). Use of structured professional judgment by probation officers to assess risk for recidivism in adolescent offenders. *Psychological Assessment*, 29, 652–663. <https://doi.org/10.1037/pas0000414>.
- Lodewijks, H. P. B., Doreleijers, T. A. H., de Ruiter, C., & Borum, R. (2008). Predictive validity of the structured assessment of violence risk in youth (SAVRY) during residential treatment. *International Journal of Law and Psychiatry*, 31, 263–271. <https://doi.org/10.1016/j.ijlp.2008.04.009>.
- Main, A., Walle, E. A., Kho, C., & Halpern, J. (2017). The interpersonal functions of empathy: A relational perspective. *Emotion Review*, 9, 388–1366. <https://doi.org/10.1177/1754073916669440>.
- Marshall, W. L., Fernandez, Y. M., Serran, G. A., Mulloy, R., Thornton, D., Mann, R. E., & Anderson, D. (2003). Process variables in the treatment of sexual offenders: A review of the relevant literature. *Aggression and Violent Behavior*, 8, 205–234. [https://doi.org/10.1016/S1359-1789\(01\)00065-9](https://doi.org/10.1016/S1359-1789(01)00065-9).
- Moyers, T. B., Houck, J., Rice, S. L., Longabaugh, R., & Miller, W. R. (2016). Therapist empathy, combined behavioural intervention, and alcohol outcomes in the COMBINE research project. *Journal of Consulting and Clinical Psychology*, 84, 221–229. <https://doi.org/10.1037/ccp0000074>.
- Nienhuis, J. B., Owen, J., Valentine, J. C., Winkeljohn-Back, S., Halford, T. C., Parazak, S. E., ... Hilsenroth, M. (2018). Therapeutic alliance, empathy, and genuineness in individual adult psychotherapy: A meta-analytic review. *Psychotherapy Research*, 28, 593–605. <https://doi.org/10.1080/10503307.2016.1204023>.
- Olweus, D., & Endresen, I. M. (1998). The importance of sex-of-stimulus object: Age trends and sex differences in empathic responsiveness. *Social Development*, 7, 370–387. <https://doi.org/10.1111/1467-9507.00073>.
- Overgaauw, S., van Duijvenvoorde, A. C. K., Moor, B. G., & Crone, E. A. (2015). A longitudinal analysis of neural regions involved in reading the mind in the eyes. *Social Cognitive and Affective Neuroscience*, 10, 619–627. <https://doi.org/10.1093/scan/nsu095>.
- Peeters, M., Zondervan-Zwijnenburg, M., Vink, G., & van de Schoot, R. (2015). How to handle missing data: A comparison of different approaches. *European Journal of Developmental Psychology*, 12, 377–394. <https://doi.org/10.1080/17405629.2015.1049526>.
- Pijper, J., de Wied, M., van Goozen, S., & Meeus, W. H. J. (2017). Empathy problems in youth with disruptive behavior disorders, with and without CU traits. In L. C. Centifanti & D. M. Williams (Eds.), *The Wiley handbook of developmental psychopathology* (pp. 161–178). Wiley. doi: 10.1002/9781118554470.ch7.
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, 21, 95–103.
- Ross, E. C., Polaschek, D. L. L., & Ward, T. (2008). The therapeutic alliance: A theoretical revision for offender rehabilitation. *Aggression and Violent Behavior*, 13, 462–480. <https://doi.org/10.1016/j.avb.2008.07.003>.
- Silke, S., Brady, B., Boylan, C., & Dolan, P. (2018). Factors influencing the development of empathy and pro-social behaviour among adolescents: A systematic review. *Children and Youth Services Review*, 94, 421–436. <https://doi.org/10.1016/j.childyouth.2018.07.027>.
- Stern, J. A., & Cassidy, J. (2018). Empathy from infancy to adolescence: An attachment perspective on the development of individual differences. *Developmental Review*, 47, 1–22. <https://doi.org/10.1016/j.dr.2017.09.002>.
- Stuijzand, S., de Wied, M., Kempes, M., Van de Graaff, J., Branje, S., & Meeus, W. (2016). Gender differences in empathic sadness towards persons of the same- versus other-sex during adolescence. *Sex Roles*, 75, 434–446. <https://doi.org/10.1007/s11199-016-0649-3>.
- van den Bos, E., de Rooij, M., Sumter, S. R., & Westenberg, M. (2016). Continued development of recursive thinking in adolescence: Longitudinal analyses with a revised recursive thinking test. *Cognitive Development*, 37, 28–41.
- van der Graaff, J., Branje, S., de Wied, M., Hawk, S., van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: Gender differences in developmental changes. *Developmental Psychology*, 50, 881–888. <https://doi.org/10.1037/a0034325>.
- van der Graaff, J., Meeus, W., de Wied, M., van Bostel, A., van Lier, P. A. C., Koot, H. M., & Branje, B. (2015). Motor, affective and cognitive empathy in adolescence: Interrelations between facial electromyography and self-reported trait and state measures. *Cognition and Emotion*, 30, 745–761. <https://doi.org/10.1080/02699931.2015.1027665>.
- van der Stouwe, T., Asscher, J. J., Hoeve, M., van der Laan, P. H., & Stams, G. J. (2018). Social skills training (SST) effects on social information processing skills in justice-involved adolescents: Affective empathy as predictor or moderator. *Children and Youth Services Review*, 90, 1–7. <https://doi.org/10.1016/j.childyouth.2018.05.006>.
- van Langen, M. A. M., Wissink, I. B., van Vugt, E. S., van der Stouwe, T., & Stams, G. J. J. M. (2014). The relation between empathy and offending: A meta-analysis. *Aggression and Violent Behavior*, 19, 179–189. <https://doi.org/10.1016/j.avb.2014.02.003>.
- van Langen, M. A. M., Wissink, I. B., Stams, G. J. J. M., Asscher, J. J., & Hoeve, M. (2014). A validation study of the Dutch translation of the Basic Empathy Scale (BES). Manuscript submitted for publication.
- van Oussem, R., Beckett, R., Bullens, R., Vermeiren, R., van Horn, J., & Doreleijers, T. (2006). The Adolescent Sexual Abuser Project (ASAP) Assessment Measures Dutch Revised Version: A comparison of personality characteristics between juvenile sex offenders, juvenile perpetrators of non-sexual violent offences and non-delinquent youth in the Netherlands. *Journal of Sexual Aggression*, 12, 127–141. <https://doi.org/10.1080/13552600600858304>.
- Zhou, Q., Valiente, C., & Eisenberg, N. (2003). Empathy and its measurement. In S. J. Lopez, & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 269–284). Washington: American Psychological Association.